TALLINN UNIVERSITY OF TECHNOLOGY
School of Business and Governance
Department of Business Administration

Nadia Benlakhdar

PERFORMANCE EVALUATION THROUGH FINANCIAL RATIOS: COMPARATIVE ANALYSIS OF PFIZER, INC. AND NOVARTIS AG

Bachelor's thesis

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Supervisor: Professor Jaan Alver

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Nadia Benlakhdar ……

(signature, date)

Student code: 156120TVTB

Student e-mail address: nadiabenlakhdar@gmail.com

Supervisor: Professor Jaan Alver

The paper conforms to requirements in force

……

(signature, date)

Chairman of the Defence Committee:

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ABSTRACT

In today's world, companies in the pharmaceutical industry face more and more competition due to globalisation and the increase in human life expectancy. To stay competitive, new medicines need to be discovered all the time and companies need to provide high quality products for their clients. The companies among this highly regulated industry, need to constantly monitor their prices and costs, as well as, their inventory levels and asset efficiency. The financial ratio analysis provides information on performances and helps in analysing the future of the companies. This analysis is fundamental for accurate decision-making and strategy implementation.

This thesis aims to present financial ratios and their analysis, including their advantages and limitations. An analysis of the two biggest companies in the pharmaceutical industry, Pfizer, Inc. and Novartis AG is also conducted in this thesis. The data is obtained from Nasdaq and the annual financial reports of both companies and the study uses a quantitative method.

The results indicate that the financial ratio analysis is a useful tool in understanding the strengths and weaker areas of both companies. Based on the information provided by the analysis, suggestions can be provided for both companies, to enable them to maximise their performances and improve even more their profitabilities.

Keywords: financial ratio analysis, pharmaceutical industry, performance, efficiency

INTRODUCTION

The increase in the average human life span, the changes in lifestyles, chronic diseases and other economic trends have led to a growing demand for medications and health supplements, therefore to a rapid growth in the pharmaceutical industry. The industry is becoming more and more competitive due to these factors, thus, financial performances and their management is nowadays vital for the companies in the industry. Paying attention to the factors that affect their success is of extreme importance, as the companies need to stay competitive in their rapidly growing industry. The companies should focus on effective decision-making and implementing strategies based on accurate data, as well as, constantly monitor their costs and inventory levels. Financial ratio analysis provides the required information about the strenghts and weaknesses of the companies as well as, their profitability, liquidity, solvency and efficiency positions. Being aware of the factors affecting their performances, enables the management to make right decisions as well as, budgets for the upcoming periods.

The purpose of this thesis is to assess the application of financial ratio analysis. Financial ratio analysis helps in understanding many factors affecting the success of companies, such as their costing and pricing strategies, as well as, their debt and asset management efficiency. The information provided by this analysis can help managers and other parties to evaluate the operations of companies.

The main purpose of this thesis is to compare the performance of the two biggest companies in the pharmaceutical industry, by using of financial ratios. The analysis includes also an evaluation of the overall efficiency of both companies, by summarising various components in one measurement; the overall performance efficiency indicator. By using the information provided by this analysis, suggestions can be provided to enable the companies to maximise their performances in various sectors. Decision-making and strategies become more accurate when relying on such data.

This thesis is based on data analysis using a quantitative method. The financial statements used for this analysis are the balance sheet and income statement of both companies from 2017, 2016 and 2015. They were obtained from Nasdaq and the financial reports of both companies. As the ratios itself provide little information they have to be compared to industry averages, therefore the averages were obtained from Stock Analysis on Net.

Research questions:

1) Which company has a better overall financial position?
2) Which company has a better overall performance efficiency?

Limitations of the study:

As this thesis is based on secondary data, the analysis part might face some limitations. The study might also be affected by the limitations that financial ratio analysis itself faces, that are mentioned in Subchapter 2.2.

This thesis contains six chapters including the introduction and conclusion. The first chapter focuses on different financial ratio categories and their most common ratios and formulas, forming a theoretical base for the upcoming analysis. The second chapter illustrates financial ratio analysis as well as, its advantages and limitations and provides information about the users of financial ratio analysis and their purposes. Being aware of the advantages and limitations of ratio analysis is of extreme importance to enable the parties interested in it, to perform a more precise analysis with accurate results. In the third chapter, a comparative financial ratio analysis of the two biggest companies in the pharmaceutical industry; Pfizer, Inc and Novartis AG is conducted, including the computation of the overall performance efficiency indicator. It includes as well, a brief overview of both companies and the industry itself, to provide a better understanding to the readers. Based on the analysis conducted in the third chapter, findings and suggestions are discussed in the fourth chapter and the research questions are answered.

1. FINANCIAL RATIOS

Financial ratios are indicators, used to evaluate company performance. Essential information about profitability, liquidity or efficiency can be obtained by analysing them. They express a relationship between two or more financial statement accounts and can be presented as percentages, proportions or number of times. (NCERT 2013). Of a complete set of financial statements, defined by the International Financial Reporting Standards (IFRS), the Balance Sheet, the Income Statement and the Cash Flow Statement are the most common financial statements used for financial ratio computations.

Many individuals and groups, such as company managers, investors, creditors and shareholders, use financial ratios to get an overview of a company's financial position and performance. Managers use financial ratios mostly in decision making, since they can, for instance, identify some weak areas that need to be solved, while investors use ratios mostly to ensure the safety of their investments and their probable value growth. Creditors use ratios to evaluate the risk of lending money to the company in question and shareholders, who rely on ratios very much, estimate the value of their shares by analysing these ratios. (Ross *et al.* 2003)

Financial ratios can be divided into four main categories: profitability, activity, solvency and financial leverage ratios. (Ibid.). The author of this thesis has chosen two ratios for each category, except the profitability ratio-category that will include four, since they are divided into two sub-categories. The reason for selecting these specific ratios, is their frequent mentioning in the accounting literature reviewed by the author and their importance for the pharmaceutical industry.

1.1. Profitability ratios

As every company's primary concern is its profitability, its improvement is of extreme importance and it requires a complete analysis of the factors affecting it. According to Ross *et al.* (2003), the profitability is one of the most difficult aspects of a company to conceptualise. Typically, the profitability is defined by the ability of a company to keep its cost of sales as low as possible and

generate satisfactory profits. Thus, the profitability ratios measure the efficiency of a company to generate profits. (Nuhu 2014). These ratios provide minor amounts of information when analysed alone, therefore they should be compared to industry averages or to past performances for a better understanding of the current financial position of the company or potential financial distress risk. (Brigham, Houston 2007)

As mentioned previously, this ratio-category can be divided into two sub-categories which are the margin ratios and the return ratios. The margin ratios show the company's ability to convert sales into profits, whereas the return ratios measure the general competence of a company to create return to its investors. (Peavler 2018).

The gross profit margin, which is one of the margin ratios, shows the proportion of money outstanding from revenues after paying cost of goods sold, also known as COGS. The formula is computed by first, substracting COGS from total sales revenue, which gives gross profit, and then dividing the result by total sales revenue. This ratio is of extreme importance for managers and investors, since it indicates how efficiently a company produces and sells its products, thus, how efficient the company is at generating profit. As for all ratios, the average value of this ratio varies between industries and companies, but usually a ratio higher than the industry average is a sign of effective management, whereas a low ratio can be a sign of under-pricing or too high cost of sales. (*Ibid*.). As this ratio varies a lot between industries, a norm of a good or bad result can't be provided by the author of this thesis.

$$Gross\ profit\ margin = (Total\ Sales\ Revenue - COGS) \div Total\ Sales\ Revenue \quad \text{or}$$
$$Gross\ profit\ margin = Gross\ profit \div Total\ Sales\ Revenue \quad (1)$$

The second margin ratio and one of the most important ones, is the net profit margin. This ratio is a fundamental part of a company's management and decision making, since it determines the financial position and health of the company. It expresses net profit as a percentage of total sales revenue, which enables comparisons between companies regardless of their size. When the ratio is above the industry average, the company manages its expenses appropriately and is considered as profitable, whereas a ratio lower than the industry average is a sign of increased competition or high cost of sales. (Robins 2000). As for the previous ratio, a norm can't be provided, as the rsults differ between industries.

$$Net\ profit\ margin = Net\ Profit\ \div Total\ Sales\ Revenue \quad (2)$$

The second sub-category of profitability ratios include the return ratios. The first one in this category is the return on assets, also referred to as ROA, which is calculated by dividing net profit by total assets. This ratio measures the company's ability to convert its assets into profits. As the use of assets differs between industries, this ratio is the most useful when compared to a company's past performances or companies within the same industry. With other profitability ratios, the higher the result, the better it is. On the other hand, a ROA too high or too much above the industry average may indicate that the company is not renewing its assets, which can in the long run, cause damage to the company. (Gallo 2016)

$$ROA = Net\ Profit \div Total\ Assets \quad (3)$$

The return on equity, or ROE, is a similar return ratio than the ROA, except that it looks at equity instead of assets. Therefore, net profit is divided by the total shareholders' equity. This ratio shows the percentage of returns on the money invested by shareholders into the company. Companies that have borrowed more money, thus their liabilities are higher and they have less equity invested, may have a higher ROE than other companies in the industry but whether this is a positive sign or not, depends on the company's ability to use this money thoughtfully. Usually, the higher the percentage compared to industry average, the higher is the management performance level. (*Ibid*.)

$$ROE = Net\ profit \div Total\ Shareholders'Equity \quad (4)$$

1.2. Activity ratios

By evaluating a company's internal use of assets and liabilities, management improvements can be made more effective, hence the company's performances can increase. Activity ratios, also called turnover ratios, are indicators of this ability of a company to use efficiently its assets, as they measure the number of times a company is turning over its assets or liabilities. Usually, the bigger the number, the faster the company is at converting its assets or liabilities into cash. (Lan 2012)

As a norm can't be suggested for these ratios either, the results should be compared to industry averages to get a better understanding of the potential efficiency of a company.

According to Lan (2012), one of the most important activity ratios is the inventory turnover ratio. It measures the number of times a company's inventory has been sold out during a financial period. (Ross *et al*.). It is calculated by dividing COGS by an average inventory, which can be calculated by adding together the beginning and ending inventories and dividing the result by two. Quarterly or monthly inventory balances can also be used for this calculation, but a chronological average is then calculated.

As the numbers required for calculating this ratio are found from both, the income statement (measures performance over a specific period) and the balance sheet (shows data as of one point), the elements must be made comparable, therefore the average inventory has to be calculated.

Since inventory is stated as costs and sales revenue as market prices, they are not comparable, therefore it is more appropriate to use COGS for this computation. (Brigham, Houston 2007)

$$Inventory\ turnover\ ratio = COGS \div Average\ Inventory \quad (5)$$

The ratio that summarises all the other activity ratios and which measures the efficiency of a company to use its assets to generate sales, is the total asset turnover ratio. (Nuhu 2014). As this ratio expresses the relationship between sales and total assets, it is computed by dividing total sales revenue by total assets, including current and non-current assets. While comparing the result to industry average or to competitors' results, a lower ratio may indicate an inefficient use of assets that can be solved by either increasing sales or by selling the surplus assets. On the other hand, a higher result is usually a sign of efficient use of assets. (Ross *et al.* 2003)

$$Total\ asset\ turnover = Total\ sales\ revenue \div Total\ assets$$

According to Wood and Sangster (2005), significant consideration is needed when comparing the result of this ratio to those of competitors, as the value of older assets is lower than those of newer assets, the result might be higher. The other companies might also use a lower depreciation rate, which as well affects the results.

1.3. Liquidity ratios

The fundamental source for debt payments is a company's current assets. It is of extreme importance for a company to have sufficient amounts of liquid assets to pay off its debts. An analysis of liquidity ratios is required for understanding whether or not a company has enough liquid resources, therefore if it has the ability to pay its debt obligations on time. (Wood, Sangster 2005). An asset is said to be liquid when it is cash or it is easily convertible into cash with minimal capital loss. (Law 2016)

The two ratios affected the most by liquidity are the current ratio and the quick ratio.

The current ratio compares current assets and current liabilities, therefore it is computed by dividing current assets by current liabilities. This ratio is an indicator of the efficiency and ability of a company to meet its short-term liability obligations by using its assets. (Wood, Sangster 2005). As for the other ratios, a norm can't been proposed by the author of this paper for this ratio, as it varies between industries and sectors.

$$Current\ ratio = Current\ assets \div Current\ liabilities \tag{7}$$

The quick ratio, also known as the acid test ratio, is similar to the current ratio comparing current assets and current liabilities. The only difference between these two ratios is that the quick ratio excludes inventory, as it is usually the least liquid asset of a company and losses usually occur when selling those assets. If the company has short-term prepayments, they are also excluded from this calculation. (Brigham, Houston 2007). The author of this thesis would therefore conclude, that this ratio gives a more accurate perspective of the liquidity position of a company than the current ratio. As for the current ratio, the quick ratio result need to be compared to industry averages for a better understanding.

$$Quick\ ratio = (Current\ assets - \ Inventory - Short - term\ Prepayments) \div Current\ liabilities \tag{8}$$

1.4. Financial leverage ratios

Financial leverage is defined as the use of debt, rather than equity, to finance business operations. (Law 2018). Many companies have some amounts of debt for asset purchases or business developments. Debt is not necessarily a negative thing, since it provides, for example, tax advantages, as interest payments are tax deductible. The problem occurs when a company has excessive amounts of debt, thus the probability of it not to be able to fulfill its obligations is higher, which may lead, in the long-run, to financial distress. (Ross *et al.* 2003). Financial leverage ratios are useful tools for especially creditors, as they can analyse the risks they might face while lending money to a company.

According to Gallo (2015), one of the most important leverage ratios is the debt-to-equity ratio, which is an indicator of the amount of debt a company uses to run its operations. Total debt is divided by total shareholders' equity and the result expresses how much debt a company has for each dollar of equity.

$$Debt - to - equity\ ratio = Total\ debt \div Total\ shareholders' equity \quad (9)$$

This ratio as well, is more useful when compared to industry average or previous periods. If this ratio is above the industry average, it might be a sign of aggressive growth financed by debt, which can add risk to the company and in the long-run, to a potential financial distress. A result below the industry average is not necessarily positive either, since the company might be relying too much on equity which can be inefficient. (Gallo 2015)

As mentioned previously, many companies have had borrowings at some point, therefore had to pay interest expenses on them. An important concern for investors is, whether or not a company has the required resources to pay its interest expenses on time. (Constable 2015). This can be measured with the interest coverage ratio, which is computed by dividing the earnings before interest and taxes (EBIT) by interest expense, and it states the number of times the interest expenses would be covered using the company's earnings. (Moles, Terry 2005). This ratio is of extreme importance when it comes to risk management, providing managers and creditors information regarding potential risks of financial distress, which is linked to companies' profitability as well. (Lucic, 2014)

$$Interest\ coverage\ ratio = EBIT \div Interest\ expense \quad (10)$$

In this case, a higher result, meaning above the industry average, ensures safety for the company. Whereas, a ratio below the industry average, might be a sign of not enough profits generated by the company, which can lead to financial distress. (NCERT 2013)

1.5. Overall performance efficiency indicator

Efficient performance measurement methods enable managers to improve companies' productivity and performances. These measurements are quite complicated, therefore the Estonian academician Uno Mereste developed a unique way to measure these factors. The overall performance efficiency indicator (OPEI), summarises within one measurement the changes in various ratios. If the efficiency of a company has increased during the period under study, the ratios would increase according to general theoretical requirements as well, therefore the OPEI would increase. (Alver 2015)

The overall performance efficiency indicator is based on a matrix model. (*Ibid*.) In this thesis, the matrix will consist of 20 ratios, surrounded by five quantitative indicators, which are indicators that represent a quantitative phenomenon.

Table 1. Ordered matrix model

Initial indicators	Net profit (NP)	Gross profit (GP)	Sales revenue (SR)	Total debt (TD)	Total equity (TE)
Net profit (NI)	1	GP/NI	SR/NI	TD/NI	TE/NI
Gross profit (GP)	NI/GP	1	SR/GP	TD/GP	TE/GP
Sales revenue (SR)	NI/SR	GP/SR	1	TD/SR	TE/SR
Total debt (TD)	NI/TD	GP/TD	SR/TD	1	TE/TD
Total equity (TE)	NI/TE	GP/TE	SR/TE	TD/TE	1

Source: Alver (2015); author's own computations

The triangular matrix below the main diagonal, with elements representing ratios that describe various aspects of a company's efficiency is called an efficiency matrix. The triangular above the

main diagonal is called an inverse efficiency matrix, as the elements are inverse values of the efficiency ratios. (Alver 2015)

The overall performance efficiency indicator is calculated by computing a geometric mean, based on the ratios from the efficiency matrix. Thus, the ratios below, in the inverse efficiency matrix, will not be calculated in the analysis part, in Subchapter 3.5.

In this thesis, as two companies are compared, the OPEI is calculated by dividing the indeces in the efficiency matrix of one company by the other companies indeces. After getting a new ordered matrix model, which will include both companies, a geometric mean is calculated. A result above 1 means that the company, which numbers are used in the numerator is performing better, whereas a ratio below 1 means that the company, which numbers are used in the denominator is performing better.

2. FINANCIAL RATIO ANALYSIS

Performance and value maximisation is the main goal of every company. Financial statements are a company's summarised performance reports, which are compiled according to the international financial reporting standards (IFRS) or local generally accepted accounting principles (GAAP). (IASCF 2018). Financial statements alone, provide little information about the financial position of a company or its value. Therefore, a financial statement analysis needs to be conducted for a better understanding of the different aspects that may affect company performances.

The financial ratio analysis is one tool of financial statement analysis. As mentioned in Chapter 1, ratios express correlations between two account balances from the same year. (NCERT 2013). As the results are presented as percentages, proportions or number of times, comparisons between companies of different size are made possible.

Financial ratio analysis is a useful tool for evaluating the overall financial performance of a company through its profitability, liquidity or leverage positions. This analysis enables the evaluation of past performances, the weak areas to be improved and the strengths, and therefore enables as well, the prediction of future financial positions and the evaluation of financial needs.

Many parties are interested in financial ratio analysis and they can be divided to internal users and external users. The external users are the creditors, investors and shareholders, whereas the internal users include the company management and employees.

These parties are all interested in financial ratio analysis, but for different purposes depending on the objectives they want to achieve through this analysis. The management of a company performs ratio analysis to get an understanding of the operating results and financial position of the business, as well as, its future potentials. Shareholders rely on ratio analysis very much, when it comes to their investements and their possible returns. Creditors evaluate the ability of the company to repay their debt obligations and interest expenses, thus they evaluate the company's liquidity position.

Investors, on the other hand, look at the operational efficiency of the company and its effects on share prices, thus they can decide whether or not to invest in the company. (*Ibid*.). It can therefore, be concluded that many parties, even the ones not involved in the operations of a company, are relying a lot on financial ratio analysis and that it plays an important role in their decision-making processes.

2.1. Advantages of ratio analysis

Making right decisions is the key in performance and value maximisation. However, proper business analysis, which can be achieved through financial ratio analysis, is needed to make those right decisions. The ratio analysis is an essential tool in decision-making and in understanding the performances of a company. In this chapter, the many advantages that can be attributed to it will be covered.

As mentioned before, a ratio alone and for one year doesn't provide much information, therefore it has to be compared to previous years or an industry average. Comparing ratios together is beneficial in identifying trends in the operations of a company, which then makes the prediction of future positions possible. The prediction of future positions enables the management to take the right decisions, which can lead to increases in profits and therefore, value maximisation. (NCERT 2013). As the ratios are expressed as percentages or number of times, companies are put on a relatively same level, regardless of their size or sales volume, which enables their comparison.

Performance is directly linked to management performance, thus financial ratio analysis is also used as a tool to evaluate the efficiency of management decisions. Weaker and stronger financial areas can be detected, which therefore enables the management to resolve more easily the problems and improve the strengths to get even better results in the future. (*Ibid*.)

The different ratio categories mentioned in Chapter 1 have, as well, their own advantages.

Profit is considered as the main indicator of a successful company, however, looking only at profits is not enough. Profitability ratios provide valuable information on the production efficiency of a company, as well as its profit-earning ability which in reality, are the main characteristics in evaluating the level of success of a company.

Liquidity and activity ratios provide an idea of the operating cycle of a company. By analysing how efficiently the products are sold and how fast assets are converted into cash, managers can optimise their production and manage their inventories in a more efficient way. (Lohrey 2018)

Leverage ratios are helpful for especially creditors as they can evaluate the risk of lending money to a company, by analysing the abilities of the company to meet its debt obligations and interest payments.

2.2. Limitations of ratio analysis

Even though financial ratio analysis is very useful and provides valuable information about company performances and operations, it still faces certain limitations that require attention. The users of this analysis must be aware of these limitations to get more accurate results.

One of the biggest limitations of ratio analysis, is the fact that it is derived from the various financial statements, therefore a problem in those statements will be reflected in the ratios. As some companies, employ, for example, window dressing techniques to make their financial statements look better, their ratios would be affected as well, making the results misleading. (Brigham, Houston 2007)

Since financial accounting is based on unchanging money measurement principle, it assumes that price fluctuations are minimal or absent. Therefore, financial ratio analysis as well, ignores the effects of price level changes and the comparisons or performance evaluations are not that accurate, especially for profitability ratios which are the most affected by this limitation. (NCERT 2013).

As mentioned in Subchapter 1.2, accounting practices vary between companies, which can make the comparisons between them confusing. Different depreciation methods are used in different companies, therefore the ratios might not reflect similar state of activities and the comparisons become misleading. The value of assets has also an effect on results and since companies' asset value is not the same, major consideration is needed when conducting a ratio analysis, particularly when analysing activity ratios. (Wood, Sangster 2005)

Although this analysis method has some limitations, when conducted carefully, it is one of the best tools to assess performance, providing essential information about various operational aspects. All the users of this analysis should be attentive to these limitations, making modifications needed for more accurate results.

3. FINANCIAL RATIO ANALYSIS OF PFIZER, INC. AND NOVARTIS AG

The Pharmaceutical industry is one of the fastest growing industries right now. The usefulness and safety of the products suggest increasing demand, as well as, the possibility for companies to set high prices and make significant profits. As the industry is highly regulated and competitive, companies might face some difficulties as well, which can affect their performances. The discovery of new products and their development is of extreme importance in this industry, therefore research and development (R&D) require large investments to enable companies to stay competitive and successful.

Operating in more than 90 international markets, selling its products in more than 125 countries and with a total sales revenue of $52.5 billion in 2017, Pfizer, Inc. is one of the world's biggest pharmaceutical companies. It started its operations in 1849 and experienced immediate success with its first product. Pfizer is specialised in the R&D and manufacturing of healthcare products. Currently, it is operating through two business sectors: Pfizer Innovative Health (IH) and Pfizer Essential Health (EH). IH accounts for approximately 55% of the company's total sales revenue and EH for approximately 45%. Pfizer has currently nine blockbusters, which are drugs that generate more than $1 billion revenues during one year, and is expecting to receive 25-30 drug approvals from the U.S. Food and Drug Administration (FDA) over the next five years, of which 15 are potential blockbusters. (Pfizer 2017)

One of the biggest competitors of Pfizer is Novartis AG, which started its operations in 1996. The company is operating through four business sectors; Innovative Medicine, Sandoz, Alcon and The Novartis Institutes for BioMedical Research (NIBR). Selling its products in approximately 155 countries, Novartis is specialised in the research, development and manufacturing of innovative health care products. Animal research plays also an important role in the company's operations. In 2017, Novartis recorded a total sales revenue of $50 billion. Currently, Novartis has the same number of blockbusters than Pfizer. (Novartis 2017)

To illustrate financial ratios and their analysis, Novartis' and Pfizer's performance are analysed for three years based on the ratios described in Chapter 1. All the calculations are based on the companies' financial statements which are presented in the Appendices. The data was acquired from Nasdaq and annual financial reports of both companies.

It is important to mention that the industry averages of the ratios were calculated without including Pfizer and Novartis, since it would have made the averages misleading. This is due to Pfizer and Novartis being within the biggest companies in the pharmaceutical industry and having summed revenues of more than 25% of the industrie's total revenues.

3.1. Comparative profitability ratio analysis

In Table 2, the gross profit margin results are presented for the case companies, as well as, an industry average for 2017, 2016 and 2015. It can be seen that Pfizer's results are closer to the industry averages than those of Novartis. The total sales of 2016 compared to 2015, reflect an operational increase of approximately 11%, partly compensated by a decrease of 3% in foreign exchange. In 2017, Pfizer managed to increase its sales by approximately 7% compared to 2015, since in the U.S. market, few of their blockbusters' revenues increased drastically. This resulted in a gross profit margin 1% point lower than in 2015. In 2017, the company also lost exclusivity in the Europe markets for few products, which had an unfavorable impact of 1% on total sales compared to 2016. This all resulted in a decrease of 1% point in 2017 compared to 2015 but an increase of 2% point compared to 2016. (Appendix 1). On the other hand, Novartis's gross profit margin has been stable for the three years under study, experiencing only minimal fluctuations in its sales revenue and cost of sales. Compared to 2015, the company experienced a slight decrease of 2% in its sales in 2016. However, in 2017, Novartis managed to decrease its cost of sales by 2% and increase its sales by 1%, which resulted in a slight increase in gross profit margin compared to 2016. (Appendix 3). In 2017, the company also managed to increase its sales volume by 7% compared to 2016, compensating few patent expirations.

As it can be seen from Appendices 1 and 3, Novartis and Pfizer have approximately the same amount of sales revenue generated. However, Novartis's cost of sales are approximately $6 billion higher than those of Pfizer. Due to these too high cost of sales, Novartis has been under the industry average during the three years under study, while Pfizer has mainly been maintaining a position

above the industry average. The results in Table 2 demonstrate better cost of sales management by Pfizer, therefore Novartis should concentrate on decreasing its cost of sales or increasing its sales prices, while trying to not decrease its sales volume or product quality.

Table 2. Gross profit margin of Pfizer, Novartis and Pharmaceuticals' industry average

Gross profit margin (%)	2017	2016	2015
Pfizer, Inc.	79	77	80
Novartis AG	66	65	65
Industry average	77	79	77

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 1 and 3

As it can be seen from Appendix 1, due to lower restructuring charges and additional expenses in 2017, Pfizer experienced an increase of $14 billion in net profit between 2015 and 2017, thus a considerable increase in net profit margin. (Table 3). As for the gross profit margin, Novartis hasn't experienced any big fluctuations in net profit margin except the 1% point increase between 2016 and 2017. This increase was due to improvements in productivity and lower amortisation, therefore higher net profit, which benefited from the higher operating profit.

From Table 3, it can be seen that both companies were under the industry average in 2015 and 2016, but managed to increase their net profits and ratios, therefore getting above the industry average in 2017. The big increase of Pfizer's result between 2016 and 2017 is due to the approximately 55 times lower additional expenses and $4 billion higher earnings before tax in 2017. The decrease of 11% point in the industry average between 2016 and 2017, is due to the poor performance of other companies in the industry.

The current net profit margins of both companies reflect suitable pricing strategies. If Novartis decreased its costs as suggested for the gross profit margin, it could have an even better position in the industry than the current one regarding this ratio.

Table 3. Net profit margin of Pfizer, Novartis and Pharmaceuticals' industry average

Net profit margin (%)	2017	2016	2015
Pfizer, Inc.	41	14	14
Novartis AG	15	14	14
Industry average	11	25	23

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 1 and 3

In the Table 4, ROA calculations are presented for the case companies. Between 2015 and 2017, Pfizer managed to increase its return on assets by 8% point, which is due to an increase in profits while having approximately the same amount of total assets. When it comes to Novartis, an increase of 1% point can be seen between 2015 and 2017, due to the same reasons than Pfizer's. A bigger increase could have been possible if the company wouldn't have increased its total assets by $1 billion.

Both companies can be seen under the industry average in 2015 and 2016, which means that efficient use of assets was lacking. However, the current results of both companies show improved profitability. As for the previous results, if Novartis decreased its costs to the same level as Pfizer's, it could remarkably increase its profitability and therefore, increase this ratio.

Table 4. ROA of Pfizer, Novartis and Pharmaceuticals' industry average

ROA (%)	2017	2016	2015
Pfizer, Inc.	12	4	4
Novartis AG	6	5	5
Industry average	4	9	9

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 1, 2, 3 and 4

In Table 5, the return on equity computations can be observed. An increase of 19% point can be seen in Pfizer's results between 2015 and 2017, which represents an increase of $14 billion in net income and an increase of $7 billion in total equity. In the other hand, big fluctuations can't be seen in these results for Novartis, which has been quite stable during the three years under study. A decrease of $3 billion can be observed in Novartis's total equity between 2015 and 2017 (Appendix 4), which resulted in the increase of 1% point in ROE during 2017.

Pfizer is currently above the industry average by 19% point, therefore it can be concluded that it has been using its shareholders' resources successfully. Whereas, Novartis has been below the industry average during the three years under study. Increasing its profit margin by lowering its cost of sales would have a positive effect on this ratio as well.

Table 5. ROE of Pfizer, Novartis and Pharmaceuticals' industry average

ROE (%)	2017	2016	2015
Pfizer, Inc.	30	12	11
Novartis AG	10	9	9
Industry average	11	23	20

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 1, 2, 3 and 4

For this chapter, it can be concluded that Pfizer shows a better overall profitability position than Novartis. As sales revenues are approximately the same for both companies, the differences in these ratios reflect mainly too high costs for Novartis, which should be lowered to get a more profitable position among the industry. Pfizer in turn, should keep its cost of sales constant, while trying to increase sales by concentrating on the better selling products.

3.2. Comparative activity ratio analysis

In this chapter, the efficiency of Pfizer and Novartis to manage their assets and liabilities will be analysed through two ratios.

When comparing the ratios presented in the table below, it can be seen that Novartis is above the industry average, while Pfizer is positioned below. Pfizer's highest ratio appeared in 2016, which was due to higher cost of sales and lower inventory costs than other years. In turn, Novartis's ratio decreased between 2015 and 2017, due to lower costs and higher inventory levels.

From these results it can be concluded that Pfizer is not managing its assets and liabilities efficiently enough and that its inventory levels are not adequate. Thus, Pfizer should review its inventory levels and focus on selling its "top" products. Novartis, being above the industry average, can be considered to perform better than its competitors. However, its inventory levels are quite low, meaning that the company buys smaller amounts frequently. These smaller amounts

are more expensive and increase the cost of sales, therefore increase the results of this ratio and can make them misleading. Due to that, Novartis has as well to review its inventory levels by increasing them and reviewing its pricing strategy to generate more sales.

Table 6. Inventory turnover ratio of Pfizer, Novartis and Pharmaceuticals' industry average

Inventory Turnover Ratio (number of times)	**2017**	**2016**	**2015**
Pfizer, Inc.	1.57	1.72	1.46
Novartis AG	2.62	2.81	2.83
Industry average	2.41	2.42	2.30

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 1, 2, 3 and 4

In Table 7, the total asset turnover calculations are presented. Pfizer's results have been stable for the three years under study, while still being under the industry average. This is again, a sign that it is not using its assets efficiently enough compared to its competitors. The same suggestions as for the previous results, apply here as well. Novartis's results, in turn, have been equal to the industry average or above, which reflects efficient use of assets.

Table 7. Total asset turnover ratio of Pfizer, Novartis and Pharmaceuticals' industry average

Total Asset Turnover Ratio (cents/dollar in assets)	**2017**	**2016**	**2015**
Pfizer, Inc.	0.31	0.31	0.29
Novartis AG	0.38	0.38	0.38
Industry average	0.37	0.38	0.38

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 1, 2, 3 and 4

To conclude this chapter, Novartis shows better overall asset management than Pfizer, with still some improvement possibilities. The author of this thesis would, therefore recommend to both companies to increase the production efficiency of their best selling products, as well as their inventory management. By doing this, both companies could experience an increase in sales, thus an increase in activity ratio results.

3.3. Comparative liquidity ratio analysis

This chapter will include an analysis of Pfizer's and Novartis's liquidity positions, through two ratios.

In the Table 8, the current ratio of both companies can be observed, as well as the industry average. A decrease in Pfizer's ratio can be seen between 2015 and 2017, which is due to an increase in accounts payable and other current liabilities, increasing the total current liabilities. A decrease in current assets can be observed as well, which is due to a decrease of approximately $2 billion in cash and cash equivalents. (Appendix 2). Even though Pfizer's results are above the industry average, it has been able to cover its short-term obligations with its current assets. In the other hand, Novartis has managed to increase its current assets by approximately $6 billion and decrease current liabilities by $0,3 billion, therefore increase its current ratio. (Appendix 4)

Table 8. Current ratio of Pfizer, Novartis and Pharmaceuticals' industry average

Current ratio	2017	2016	2015
Pfizer, Inc.	1.35	1.25	1.49
Novartis AG	1.21	1.12	0.96
Industry average	1.82	2.14	1.92

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 2 and 4

Both companies can again be seen under the industry average regarding the quick ratio in Table 9. Pfizer has, however, better results than Novartis. The decrease of Pfizer's results between 2015 and 2017 is due to the decrease in cash and cash equivalents, therefore decrease in current assets. In turn, the decrease in current liabilities is associated to accrued interest due to lower interest rates. (Appendix 2). Novartis's results are, in average, 0.71 lower than the overall industry averages, which demonstrates reduced ability to meet short-term obligations compared to competitors. This is mainly due to the company's low current asset amounts.

Table 9. Quick ratio of Pfizer, Novartis and Pharmaceuticals' industry average

Quick ratio (%)	2017	2016	2015
Pfizer, Inc.	1.10	1.03	1.23
Novartis AG	0.91	0.84	0.70
Industry average	1.42	1.69	1.48

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 2 and 4

When looking at the ratios, it could be said that Novartis has currently a quite poor liquidity position that need improvements. However, when analysising the financial statements, it can be seen that Novartis has approximately $7 billion more cash and cash equivalents than Pfizer, which therefore, means that Novartis is actually in a better liquidity position than Novartis. When having enough cash, other current assets are not essential, therefore Novartis' total current assets are approximately 50% lower than those of Pfizer, thus the liquidity ratios look "poorer". When it comes to Pfizer, even though it has $7 billion less cash and cash equivalents than Novartis, it can compensate that with its other current assets, therefore it is able to cover its liabilities and has a satisfying liquidity position as well.

3.4. Comparative financial leverage ratio analysis

As mentioned in Chapter 1.4, a debt-to-equity ratio below the industry average is better than a ratio above it. In Table 10, it can be seen that both Pfizer and Novartis are below the industry average, which means that they are able to finance their investments with equity and only need moderate amounts of debt. Novartis can be seen in average 44% below the industry average during the three years under study, whereas, Pfizer is approximately 12% below. A lower ratio, as mentioned before, is considered better than a high ratio but it can sometimes mean that the company is over relying on shareholders' equity, which is currently the case for Novartis.

It can be concluded that even though Novartis is a lot more below the industry average, it is over relying on equity, therefore not using the advantages of debt. The company could, for example, use debt for expansion. Pfizer's results in the other hand, are at a good level, as it can finance its investments, such as R&D with equity, while still having manageable amounts of debt.

Table 10. Debt-to-equity ratio of Pfizer, Novartis and Pharmaceuticals' industry average

Debt-to-Equity Ratio (%)	2017	2016	2015
Pfizer, Inc.	61	71	60
Novartis AG	38	32	28
Industry average	84	76	69

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 2 and 4

In Table 11, the interest coverage ratios can be seen. Between 2015 and 2017, Pfizer experienced an increase of 2% point in the ratio. As its interest expenses have been at quite the same level during the three years under study, the fluctuations in the results are due to the changes in EBIT. Compared to the industry average, Pfizer's results were lower in 2015 and 2016, meaning that compared to its competitors it wasn't generating enough revenues to cover its interest expenses. However, in 2017, it managed to increase its earnings by decreasing additional income expenses, therefore resulting in a ratio higher than the industry average. When it comes to Novartis, it has been above the industry average during the three years, because of lower amounts of debt, therefore lower interest expenses than Pfizer.

These interest coverage results show that both companies are currently able to meet their interest payments and are in a safe position.

Table 11. Interest coverage ratio of Pfizer, Novartis and Pharmaceuticals' industry average

Interest Coverage Ratio (number of times)	**2017**	**2016**	**2015**
Pfizer, Inc.	10.69	8.04	8.48
Novartis AG	12.58	12.06	13.48
Industry average	9.01	10.57	12.56

Source: Stock Analysis on Net (2018); author's own calculations based on data from Appendices 1 and 3

It can be concluded from this chapter, that Novartis could take more long-term debt to finance its operations and for potential development, while still keeping the amounts controllable. Regarding its interest expenses it is in a safe position and is able to efficiently cover its interest with its EBIT. Pfizer, in turn, shows more adequate levels of debt but with a poorer performance regarding interest payments. However, both companies can, be seen in an acceptable financial leverage position, which they should keep constant.

3.5. Comparative overall performance efficiency indicator analysis

In this subchapter, the overall performance efficiency indicator is calculated and analysed. In table 12, the ratios for Pfizer are presented and in Table 13, those of Novartis. It can be seen that all ratios, except GP/TD and SR/TD are higher for Pfizer. This demonstrates already, that Pfizer is performing more efficiently than Novartis. Pfizer's net profit is approximately $14 billion higher

than Novartis' which has a big impact on the ratios calculated based on net profit. (Appendix 1 and 3). Pfizer's gross profit is also approximately $8 billion higher, therefore the ratios calculated based on gross profit are higher than those of Novartis. (Appendix 1 and 3). However, as mentioned previously, GP/TD is higher for Novartis, which is due to the company over relying on equity, therefore it's debt amounts are $15 billion lower than Pfizer's. SR/TD is also higher for Novartis, for the same reasons as for GP/TD.

Table 12. Pfizer, Inc. ordered matrix model for 2017

Pfizer Inc.	Net profit (NP)	Gross profit (GP)	Sales revenue (SR)	Total debt (TD)	Total equity (TE)
Net profit (NP)	1	-	-	-	-
Gross profit (GP)	0.52	1	-	-	-
Sales revenue (SR)	0.41	0.79	1	-	-
Total debt (TD)	0.49	0.95	1.21	1	-
Total equity (TE)	0.30	0.58	0.74	0.61	1

Source: Alver (2015); author's own calculations based on data from Appendices 1 and 2

In the table below, Novartis' results show poorer overall performance efficiency than Pfizer's. The companies have different sales structures, which can be understood from their sales revenues being quite at the same level, while having a big difference of $6 billion in cost of sales. This has a unfavourable impact on Novartis' ratios. (Appendix 1 and 3)

The fact that Novartis is over relying on equity affects these ratios as well, since its debt amounts are lower than Pfizer's.

Table 13. Novartis AG ordered matrix model for 2017

Novartis AG	Net profit (NP)	Gross profit (GP)	Sales revenue (SR)	Total debt (TD)	Total equity (TE)
Net profit (NP)	1	-	-	-	-
Gross profit (GP)	0.23	1	-	-	-
Sales revenue (SR)	0.15	0.66	1	-	-
Total debt (TD)	0.27	1.16	1.76	1	-
Total equity (TE)	0.10	0.44	0.68	0.38	1

Source: Alver (2015); author's own calculations based on data from Appendices 3 and 4

In the Table 14, the comparison of Pfizer's and Novartis' ratios are presented. They were calculated by dividing Pfzer's ratios by those of Novartis. Based on that table, the overall performance efficiency indicator (OPEI) was calculated as shown below the table.

Table 14. Comparison between Novartis AG and Pfizer, Inc. ordered matrix models for 2017

Novartis and Pfizer comparison	Net profit (NP)	Gross profit (GP)	Sales Revenue (SR)	Total debt (TD)	Total equity (TE)
Net profit (NP)	1	-	-	-	-
Gross profit (GP)	2.21	1	-	-	-
Sales revenue (SR)	2.64	1.20	1	-	-
Total debt (TD)	1.81	0.82	0.69	1	-
Total equity (TE)	2.88	1.30	1.09	1.59	1

Source: Alver (2015); author's own calculations based on data from Tables 12 and 13

Based on the table above, the OPEI can be calculated:

2.21*2.64*1.81*2.88*1.20*0.82*1.30*0.69*1.09*1.59 = 46.32

$\sqrt[10]{46.32} = 1.47$

Based on the result calculated previously, it can be concluded that Pfizer has a better overall performance efficiency than Novartis as the result is above 1 and Pfizer's ratios were used in the nominator. If the result would have been below 1, Novartis would have been more efficient.

Pfizer, being an American company and Novartis being a Swiss company, it can be assumed that they have different sales structures, as well as, business environments. Even though both companies are selling their products globally, due to their headquarter basis, Pfizer has more operations in the U.S. and Novartis in Europe. These elements affect their operations and performance, by deduction their ratios. In the U.S. they generally have less vacations than in Europe, which can mean that Pfizer has more delivery days which again, means more sales. The different company cultures affect also their efficiency, as team work, innovation and communication play key roles in the success of a company. The fact that Novartis is selling its products in 155 countries and Pfizer in 125, means that Novartis has 30 organisations more that are added to its overall cost. This therefore, affects their performance.

When looking at the ratios, Pfizer has better results than Novartis, which is a sign of better overall performance efficiency. However, as mentioned previously, there are a lot more elements that affect these results, thus, a deeper analysis would be needed to get a better understanding of the differences between the companies.

4. FINDINGS AND SUGGESTIONS

The financial ratio analysis for Pfizer and Novartis appeared to be useful, as it revealed both companies' strengths and weaknesses.

4.1. Findings

Based on profitability ratios, Pfizer can currently be considered as more profitable than Novartis. Pfizer is generating approximately $2 billion more sales revenues than Novartis, while still having lower cost of sales of approximately $6 billion. This reflects better cost management from Pfizer.

When it comes to activity ratios, Novartis shows better overall asset management than Pfizer, having results above the industry averages. Pfizer can be considered to not use its assets efficiently and not having adequate levels of inventory. In turn, Novartis, which showed better overall efficiency in utilising its assets is not having adequate levels of inventory either, which means that it has to buy smaller amounts more often which are more expensive. This causes increase in cost of sales. Novartis has approximately 7,000 headcounts more than Pfizer, which is affecting their costs, therefore activity ratios.

Based on the liquidity ratio results, it can be said that Pfizer has a better liquidity position than Novartis. However, in reality, when looking at the financial statements of both companies, it can be said that Novartis has a better liquidity position than Pfizer, as it has $7 billion more cash and cash equivalents. Novartis doesn't need that much other current assets than Pfizer, since it is able to cover approximately half of its liabilities with cash. Whereas, Pfizer's cash and cash equivalents have been between $3,6 and $1,3 billion and current liabilities between $31 and $30 billion, it therefore needs more current assets to cover those liabilities. Even though, Pfizer has less cash and cash equivalents than Novartis, having more current assets, enables the company to meet its liabilities therefore, it is in a safe position regarding liquidity. The industry averages of the liquidity ratios are really high, which can also mean that the other companies among the industry have too

much liquidity, therefore the industry averages can be misleading. Further analysis would be needed to get a better understanding of this situation.

The financial leverage ratio analysis indicates that both companies are in safe positions regarding their debt and interest payments. However, Novartis is over relying on equity, therefore not taking advantage of the benefits of debt.

The overall performance efficiency indicator shows that Pfizer is performing more efficiently than Novartis. Pfizer's cost of sales management and debt management are better than Novartis', which have a big effect on the ordered matrix model presented in subchapter 3.5.

All in all, both companies seemed to be in generally good positions without any signs of potential financial distress.

4.2. Suggestions

Based on the different ratio analysis conducted, few suggestions can be provided by the author of this thesis for both companies to improve their profitability and liquidity, as well as, their asset and debt management.

Pfizer being in a satisfying profitability position can be recommended to increase its sales by concentrating on its better selling products, while still managing better its cost of sales, for even better profitability. When it comes to Novartis, as its biggest weakness is currently the too high cost of sales, it should try to decrease them to the same level as Pfizer's, by changing its selling structure.

For the activity ratios, the same suggestions as for the profitability ratio apply for Novartis; decrease its headcount and increase its inventory level. It could also decrease its cost of goods sold. On the other hand, Pfizer should review its inventory levels as well, since it experienced delivery shortages in 2017. The company should increase its production, which would correct the delivery shortages.

When it comes to liquidity ratios, Pfizer should review its sales mix and improve the sales of its blockbusters, which would increase its sales. Novartis should concentrate on paying off its liabilities, as well as, concentrating on its blockbusters as Pfizer to increase its sales.

The financial leverage analysis indicated two companies in a safe position, being able to pay their debts with shareholders' equity and having enough earnings to pay their interest expenses. Since Novartis seems to be over relying on equity, more analysis should be done and the company should look in depth into its equity management. Pfizer had more adequate levels of debt but seemed to have small problems in 2016 and 2015 regarding interest payments. However, it is currently in a safe position and should keep its results at least at the industry average level.

CONCLUSION

Due to the continuous increase in demand and competition in the pharmaceutical industry, the analysis of factors that affect the overall success of the companies is crucial. Right decisions regarding the company's operations can be made more accurately, when being conscious of its weaknesses and strengths.

Financial statements and their analysis have improved considerably during the last decades and more tools have been provided to managers, investors, shareholders and creditors to easily get the information needed. One of the main methods to evaluate company performances are the financial ratios. Understanding and analysing them, even though they might face some limitations, is of extreme importance in decision-making processes for many parties.

Improving the profitability, liquidity, efficiency and overall performances of a company is not all about increasing sales. There are many more factors affecting the success and value of a company, which need to be analysed. The financial ratio analysis, when conducted carefully and while being aware of its limitations, provides powerful information on these factors. Being aware of the strengths and weaknesses, enables the companies to resolve potential problems early enough to avoid financial distress. Future positions can also be predicted by analysing financial ratios, however predictions only based on previous years' data can be misleading.

The financial ratio analysis appeared to be useful for the case companies. It provided information on both companies' profitability, liquidity and efficiency. Pfizer showed a better overall financial position than Novartis, which in turn, showed better asset management. Both companies are in a safe position regarding their debts and interests, being able to repay them with shareholders' equity and earnings. However, Novartis seemed to rely too much on equity.

When it comes to the overall performance efficiency indicator, it demonstrated that Pfizer has a better overall efficiency than Novartis. There are a lot of elements affecting this indicator, therefore a deeper analysis would be needed to understand the results better.

This analysis apperead to be useful, as it provided a clearer picture of both companies' performance. It is however, extremely important to remember that this analysis was based on ratios that face certain limitations. There are also many different elements besides operations that have an impact on performance, such as the economy and business environment, which cannot be analysed through ratios. Thus, further in depth analysis would be needed to get even more information on both companies' operations.

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APPENDICES

Appendix 1. Pfizer, Inc. Income statement for 2017, 2016 and 2015

Pfizer Inc. Income Statement (USD in Millions)	Years		
Period Ending:	**2017**	**2016**	**2015**
Total Revenue	52,546	52,824	48,851
Cost of Sales	11,240	12,329	9,648
Gross Profit	**41,306**	**40,495**	**39,203**
Research and Development	7,657	7,872	7,690
Sales, General and Admin.	14,784	14,837	14,809
Non-Recurring Items	487	1,724	1,152
Other Operating Items	4,758	4,056	3,728
Operating Profit	**13,620**	**12,006**	**11,824**
Add. income/expense items	(45)	(2,469)	(1,660)
Earnings Before Interest and Tax	13,575	9,537	10,164
Interest Expense	(1,270)	(1,186)	(1,199)
Earnings Before Tax	12,305	8,351	8,965
Income Tax	(9,048)	(1,122)	(1,990)
Minority Interest	(47)	(31)	(26)
Net of tax	(2)	(17)	(11)
Net Profit-Cont. Operations	21,353	7,229	6,975
Net Profit	**21,308**	**7,215**	**6,960**
Net Profit Applicable to Common Shareholders	**21,308**	**7,215**	**6,960**

Source: Nasdaq (2018)

Appendix 2. Pfizer, Inc. Balance sheet for 2017, 2016 and 2015

Pfizer Inc. Balance Sheet (USD in Millions)	Years		
Period Ending:	**12/31/2017**	**12/31/2016**	**12/31/2015**
Cash and Cash Equivalents	1,342	2,595	3,641
Short-Term Investments	18,650	15,255	19,649
Net Receivables	11,271	11,266	10,838
Inventory	7,578	6,783	7,513
Other Current Assets	2,301	3,050	2,163
Total Current Assets	**41,141**	**38,949**	**43,804**
Long-Term Investments	7,015	7,116	15,999
Fixed Assets	13,865	13,318	13,766
Goodwill	55,952	54,449	48,242
Intangible Assets	48,741	52,648	40,356
Other Assets	3,227	3,323	3,420
Deferred Asset Charges	1,855	1,812	1,794
Total Assets	**171,797**	**171,615**	**167,381**
Accounts Payable	9,358	9,404	8,249
Short-Term Debt / Current Portion of Long-Term Debt	9,953	10,688	10,159
Other Current Liabilities	11,115	11,023	10,990
Total Current Liabilities	**30,427**	**31,115**	**29,399**
Long-Term Debt	33,538,	31,398	28,740
Pension benefit obligations	5,926	6,406	6,310
Postretirement benefit obligations	1,504	1,766	1,809
Other liabilities	6,149	6,337	5,257
Deferred Liability Charges	3,900	30,753	26,877
Other taxes payable	18,697	4,000	3,992
Total Liabilities	**100,141**	**111,776**	**102,384**
Common Stocks	464	461	459
Capital Surplus	84,278	82,685	81,016
Retained Earnings	85,291	71,774	71,993
Treasury Stock	(89,425)	(84,364)	(79,252)
Other Equity	(9,321)	(11,036)	(9,522)
Total Equity	**71,308**	**59,544**	**64,720**
Total Liabilities & Equity	**171,797**	**171,616**	**167,382**

Source: Nasdaq (2018)

Appendix 3. Novartis AG Income statement for 2017, 2016 and 2015

Novartis AG Income Statement (USD in Millions)	Years		
Period Ending:	**2017**	**2016**	**2015**
Total Revenue	50,135	49,436	50,387
Cost of Revenue	17,175	17,520	17,404
Gross Profit	**32,960**	**31,916**	**32,983**
Research and Development	8,972	9,039	8,935
Sales, General and Admin.	15,359	14,609	15,071
Operating Profit	**8,629**	**8,268**	**8,977**
Add. Income/expense items	(39)	(447)	(454)
Earnings Before Interest and Tax	9,776	8,524	8,789
Interest Expense	(777)	(707)	(655)
Earnings Before Tax	8,999	7,817	8,134
Income Tax	1,296	1,119	1,106
Equity Earnings	1,108	703	266
Net Profit-Cont. Operations	7,703	6,698	7,028
Net Profit	**7,703**	**6,698**	**7,028**
Net Profit Applicable to Common Shareholders	**7,703**	**6,698**	**7,028**

Source: Nasdaq (2018)

Appendix 4. Novartis AG Balance sheet for 2017, 2016 and 2015

Novartis AG Balance Sheet (USD in Millions)	Years		
Period Ending:	12/31/2017	12/31/2016	12/31/2015
Cash and Cash Equivalents	8,860	7,007	4,674
Short-Term Investments	625	770	773
Net Receivables	8,802	8,358	8,180
Inventory	6,867	6,255	6,226
Other Current Assets	3,054	2,541	2,992
Total Current Assets	**28,208**	**24,931**	**22,845**
Long-Term Investments	15,370	14,304	15,314
Fixed Assets	16,464	15,641	15,982
Goodwill	31,750	30,980	31,174
Intangible Assets	29,997	31,340	34,217
Other Assets	3,061	2,894	3,067
Deferred Asset Charges	8,229	10,034	8,957
Total Assets	**133,079**	**130,124**	**131,556**
Accounts Payable	6,892	6,476	7,385
Short-Term Debt/Current Portion of Long-Term Debt	5,308	5,905	5,604
Other Current Liabilities	11,203	9,828	10,719
Total Current Liabilities	**23,403**	**22,209**	**23,708**
Long-Term Debt	23,224	17,897	16,327
Other liabilities	7,057	8,470	8,044
Deferred Liability Charges	5,168	6,657	6,355
Minority Interest	59	59	76
Total Liabilities	**58,911**	**55,292**	**54,510**
Common Stocks	969	972	991
Treasury Stock	(100)	(76)	(101)
Other Equity	73,299	73,936	76,156
Total Equity	**74,168**	**74,832**	**77,046**
Total Liabilities & Equity	**133,079**	**130,124**	**131,556**

Source: Nasdaq (2018)